221 dug near streams for drying; tobacco and salt
222 grass gathered on floor of valleys, cane for
224 sweets at Cane creek; manzanita berries gathered
226 in mts. Fish corralled, dried; fishing at summer fish camps in canyon of unaugmented Kern after snow floods had subsided; mussels obtained near Kernville. Brush fired for rabbits on floor of valleys; communal antelope drive with Yokuts near Bakersfield in San Joaquin valley. Trading expeditions to Yokuts, Chumash at Tejon, Ventura.

Middle of August to September. Piñons gathered in lower borders of piñon areas; juniper berries gathered. Some fishing using fish poison as streams became lower; water too warm for much fishing in lower reaches of Kern r. Birds, small game trapped at piñon grounds; deer hunted.

September to middle of October. Piñons gathered and cached at higher altitudes, e. part of area; wild grapes gathered near Inyo-Kern in Indian Wells valley on return trip from piñon gathering; acorns gathered near hamlets. Small game, birds trapped at piñon grounds; deer hunted.

Middle of October to middle of November. Ripe Digger pine nuts gathered near hamlets and in Hot Springs valley; acorns gathered by women and cached in Greenhorn mts., around Poso Flat, and in Paiute mts. while men hunted deer at acorn grounds; "deer, rabbits fat at this time." Ducks obtained on rivers; fishing with fish poison on Erskine creek in Hot Springs valley. Trips made by families to Tulare lake to eat ducks and fish.

Middle of November to February. Life centered in hamlets; acorn, piñon caches, stores of dried fish, meat drawn upon. Fish speared in November and December from balsas on rivers; deer, rabbits, ducks, quail, etc., occasionally hunted, trapped. Individuals made trips across Sierras E [317 484] to Mohave desert to obtain rock salt from lakes which were in flood at this season.

262 Food preferences and rejections.- Of vegetable
● 824 foods oily varieties highly esteemed; among acorns which were staple food, oily or sweet varieties which required little leaching preferred. Buckeye nuts, obtainable in quantity on slopes of Kern r. gorge, "too bitter," although occasionally used. Of 2 varieties pine nuts gathered, nuts from piñon pine (referred to throughout as piñons) ranked second to acorns as staple; piñons which had been strung on native twine rated as delicacies; black piñon mush (p. 18) considered better than white. Among small seeds those of 2 varieties of Mentzelia referred to as being better than chia seeds "because they had more grease" (SM).

252 Niceties in matter of diet extended to prepara-
824 tion of food and tobacco. Special varieties of willows, Salix hindsiana Benth. and S. exigua Nutt., used to wrap up fish which were to be roasted, tobacco when it was to be cured, as these willows did not impart any odor to food. Digger [276] pine nuts, not piñons, mixed with tobacco "because they gave a better flavor" (FP,ES,SM).

252 they gave a better flavor" (FP, ES, SM). For
824 roasting piñon cones, brush bed had to be of Artemisia tridentata Nutt. or A. cana Pursh; "you can't use any other kind; the cones get hard and won't open; with this kind they are soft, and open easily" (SM).

824 In his lifetime SM had experimented with 2
262 wild foods which proved unpalatable; one was cac-
813 tus, Opuntia basilans Engelm., flower receptacles of which he roasted but disliked because all fine hairy stickers could not be singed off and stuck to tongue; other was fruit of Cucurbita foetidissima HBK, which proved too "bitter"; this "never eaten" (FP).

262 Bulbs of wild onion, Allium peninsulare Lemmon
824 and A. hyalinum Curran, and wild garlic, A. lacunosum Watson, not eaten (SM, FP), although leaves, stalks, heads were used. Brodiaea bulbs (hocal), Brodiaea capitata Benth., B. synandra (Hcl.) [171] Jepson, foothill floral area, not eaten; first variety important for Owens Valley Paiute (Steward, 1933, 245). Seeds of redberry (ču·nal), Rhamnus crocea ilicifolia (Kell.) Greene, and coffeeberry (opo·bul), R. californica cuspidata (Greene) Wolf, foothill floral area, rejected as food; first-mentioned variety characterized as "berries fox eats," second as "no good; bitter" (SM).

262 Animals accessible to Tübatulabal, but re-
825 jected as food, include so-called "wolf," probably
136 desert coyote, Canis estor Merriam (tïba·ič) and (California ?) coyote (išt), because they "smell bad," fox (iklo·bal), skunk (ponihw), weasel (u·ga·bič), snakes, which included rattlesnake (šïmïnt), water snake (tuhat), gopher snake (tubapïl), king snake (pokpo·go·nal), red racer (pišu·gat), lizard (šikol), bat (paca·wal), frogs (wo·hna·l, wa·ga·išt, large and small variety), land crab (ï·ba·kunt) which is "poisonous like a snake" (SM), turkey vulture (yo'olapï·n), which "smells bad," crow (akapišt), whose "meat is no good," roadrunner (ïihyïmbišt) who "eats lizards," hawk (lapa'apï·l), kingfisher, owls which included barn owl (še·gapišt), screech owl (tu·klu·lu), horned owl (muhumbišt), burrowing owl (pogoh), bluebird (a·ẓayibišt), meadowlark (u·ša·l), because "people liked them, felt sorry for them" (FP), woodpecker (ču·lušt), and yellow-hammer, because they eat piss ants (MM), tobacco worms (pi'a·gïnt), earthworms (tuha·wal), grasshoppers (ka'awï·t) and other worms, grubs, in-[171] sects (SM, FP). Horses not eaten; neighboring Koso on desert ate them (FP, SM).

Animal foods concerning which there were differences of opinion on whether edible or inedible included: grizzly bears (u·nal) eaten (SM) not eaten (FP), golden eagle (a·šawït) eaten (SM) not eaten (FP), dogs (pukabišt) eaten (SM, PN) not eaten (FP), sandhill and whooping cranes (wa·šal) eaten (FP) not eaten (SM), woodpeckers (culust) eaten (FP) not eaten (SM), turtles (ko·yo·t) [177] eaten (SM) not eaten (FP), eggs (pompt) eaten (FP) "not eaten before white man came" (SM).

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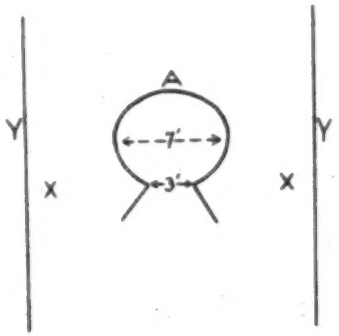

Fig. 2. Fish corral. A, wall of corral, X, men with poles, Y, banks of stream.

226 Another method of obtaining fish in large quantities was to stupefy them; roots, stalks, leaves of plant (pa·lu·ɣ) which "looks like cane, grows in moist soil, has leaves that get reddish-yellow in fall" and which SM identified from drawing as sp. of Smilacina, mashed slightly, [171] thrown into quiet pools. Buckeye, turkey mullein, soaproot, all available to Tübatulabal and used by other tribes as fish poison, not used (SM, FP). In poisoning fish, no dam built; as fish floated to surface they were scooped up in conical twined tule baskets.

226 411 In winter fish sluggish, "hardly move"; mainly harpooned or speared from rafts in Kern r. and South Fork valley lakes by individuals. Fish spear long pole with 2 wooden points sharpened by rubbing on rock.

252 Fresh fish cleaned, roasted whole; 4 large fish often tied together, wrapped in branches of odorless willows (poyiwošt; p. 11) and cooked in ashes at fishing place; carried home in willow wrapping. Mussels cooked by roasting in shells in hot ashes. [251] Fish one of foods Tübatulabal stored for winter use.

● 824 137 Ethnobotany.- Botanical collections made chiefly in South Fork, Kern valleys, and surrounding foothill regions in May-July; collections checked with SM, ES chiefly. Some 220 species collected, 130 of which informants said were put to economic or medicinal uses; 56 of these ethnobotanical species belong to foothill floral area, 40 to desert floral area, 10 to Great Basin floral area; remainder general in distribution.

In identifying specimens, informants tasted, smelled plants if dubious about identification.

Of plant foods, those starred mentioned most frequently by informants; possibly these plants used most commonly for food in aboriginal times.

Nuts, large seeds (generic term, punṭil) included: *Acorns (generic term, wa'ant). Six varieties used: (1) acorns (maṇi·l) from blue oak (maṇi·'u·l), Quercus douglasii H. & A., foothill floral area; these grow on n. slopes of Paiute mts. at s. borders Tübatulabal area; nuts mature annually, large, "don't taste bitter after leach-

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ing" (SM); "pretty good; not very bitter" (FP). (2) Acorns (winiya·l) from black oak, Q. californica (Torr.) Cooper; grow in Greenhorn mts.; nuts mature biennially; "good, oily; don't need much leaching" (SM); "these were the best; we went for them every yr." (FP). (3) Acorns (yu·mukt) from Wislizenus or live oak (yu·mu·gul), Q. wislizeni A. DC., foothill floral area; grow in some profusion in lower foothills of 3 valleys; nuts small, mature biennially, "bitter" (SM), "take all day to leach" (FP). (4) Acorns (takwat) from California scrub (takwa·dul), Q. dumosa Nutt. (?); grow "over by Paiute mts., also on Greenhorn mts."; nuts mature annually, "rather small, bitter" (SM). (5) Acorns (wa'anwit) from maul oak (wa'anul), Q. chrysolepis Liebm., foothill floral area; grow "up in mts. W of Chimney meadows" (SM); nuts mature biennially, "pretty bitter" (SM). (6) Acorns (ši·bi·l) from valley oak (ši·bi·'ï·l), Q. lobata Nee; grows in San Joaquin valley; nuts large, abundant, mature annually; "sweet"; Tübatulabal made trips into Yokuts territory "around Porterville" to gather these (SM).

*Piñons (tïbat) from single-leaf or piñon pine, Pinus monophylla, Great Basin floral area; cones mature biennially; nuts rich in oil; piñon pine found at altitudes 4000-6000 ft., chiefly in e. part of Tübatulabal area.

*Pine nuts (wohont) from Digger or gray pine (wohonol), Pinus sabiniana, foothill floral area; cones mature biennially; trees common throughout foothills in area.

Buckeye nuts (pa·ša·'ul) from California buckeye, Aesculus californica Nutt.; foothill floral area; grows in great profusion on steep sides of Kern r. gorge.

Sunflower seeds (ta·lata·ugibï·l); post-white; formerly planted in gardens.

Seeds, berries (generic term, anht) included: *Chia seeds (pa·ši·l), Salvia columbariae Benth.; *thistle sage seeds (paclst), S. carduacea Benth.; desert floral area.

*Bunch grass or wild rice (u·gibï·l), Echinochloa crus-galli (L); alkaline weed.

*Mentzelia albicaulis Dougl. (ku·l) and M. gracilenta T. & G., desert and Great Basin floral areas.

*Wild oats (ma·št).

*Rabbit's foot or beard grass (po·mbikanan, furry), Polypogon monspeliensis (L.) Desd.; general in distribution.

*Seeds of wild heliotrope, Heliotropium curassavicum L., alkaline areas in general, and seeds of Eriogonum species (tu·nabo·l). Specimen of 2 other varieties of seed plants (šo·'itih and pa·wagul) not obtained.

*Gooseberries (wopnil), Ribes quercetorum Greene, foothill floral area; abundant in lower foothills of area.

*Boxthorn berries (pi·'ict), Lycium torreyi Gray, desert floral area.

Manzanita berries (kïnal), Arctostaphylos sp.

●824
137 *Juniper berries (wa·'at), Juniperus californica Carr, var. utahensis and J. utaliensis Lemmon; Great Basin floral area; berries of both species mature second yr.

Elderberries (ku·hupïl), Sambucus velutina D & H; foothill floral area; eaten (SM), not eaten (FP).

Wild grapes (wo·lo·nt), probably from Vitis californica Benth.; gathered in Koso territory near Inyo-Kern.

Deadly nightshade berries (mane·ẓa'), Solanum nigrum L., foothill floral area.

Roots (generic term wi·šin) included: Tule roots (si'i·bï·l), Scirpus acutus Muhl; marshes in general.

*Cattail roots (to·ibï·l), Typha latifolia L.; general in ponds.

Bulbs (generic term ko·mbin) included: Mariposa lily bulbs (ho·ẓišt), Calochortus venustus Dougl., and C. palmeri Wats.; foothill floral area.

Bulbs (yambal) which were 1 1/2 in. long, "looked like potatoes"; plentiful at Fay ranch in mts. N of Weldon and at Tejon (SM).

Stalks (generic term u·'un) included: *Spanish bayonet (kuyat), Yucca whipplei Torr.; foothill and desert floral areas. Cf. kuya'dibï·l, center stalk of Y. whipplei, used in manufacture of bull-roarer.

*Red thistle (čiyiyal), Cirsium occidentale (Nutt.) var. coulteri Jepson; foothill floral area.

Mescal (kukt), Nolina parryi Wats.; desert floral area.

Wild rhubarb (aba·nal), species of dock.

Leaves (generic term nanhabï·l), pods, receptacles (ča'a·bil) included: *Leaves, stalks, heads of wild onion (ši·wil), Allium peninsulare Lemmon, A. hyalinum Curran, and wild garlic (wowo·l, testicles), A. lacunosum Wats.; foothill floral area.

*Leaves of Coreopsis bigelovii (Gray) Hall (ibi·l, also generic term for flower); desert and dry interior floral areas.

*Leaves, stems of small red variety of clover (panwal); of larger variety (panwal u·wan), Trifolium involucratum Ort., foothill floral area; and of variety which was tall, "sour" and grew in moist places (panwal tuwuganan).

*Leaves (tu·t), stems of salt grass (tu·bu·l), Distichlis spicata (L.) Greene; saline soil.

Leaves of Cotyledon laxa (Lindl.) Brew. & Wats. (ma·šali·nu, Spanish loan word); foothill floral area.

Leaves of fiddle necks (ugabul), Lotus scoparius (Nutt.) Ottley, and Ellisia membranacea Benth. (ka·mu·yah), foothill and desert floral areas, respectively.

Leaves, stalks of Monardella candicans Benth. var. exilis Gray (ka·lukt, the armpit); desert floral area; of Pellaea compacta Max (tča), foothill floral area; of mountain tea (u'tu·dul), Ephredra viridis Coville.

[p.15 (b)]

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Leaves, stems watercress (beros, Spanish loan word), Radicula nasturtium-aquaticum (L.) Britt. & Rendle, not eaten aboriginally; sometimes boiled now for greens; leaves of wild mustard (hi·ulit), Sisymbrium officinale L., fried in grease; "learned this from Mexicans" (SM).

Immature pods of tree yucca or Joshua tree (umu·bi·l), Yucca brevifolia Engelm.; desert floral area.

Receptacle of cacti (ya·l), Opuntia caseyi Britt. & Rose var. magenta Pursh and O. basilans Engelm.; desert floral area.

Some plant species named, but put to no use, as: wild lilac (to·bu·l), Ceanothus divaricatus Nutt., foothill floral area; choya cactus (u·šil), desert floral area; California poppy (yogobul), Eschscholtzia californica Cham. and E. minutiflora Wats. (same name), foothill, desert floral areas, respectively; several varieties of lupines (šimindiŋ taman, rattlesnake's teeth, so named because pistils and stamens protrude from keel of flower like teeth, SM), Lupinus sparsiflorus Benth., L. odoratus Heller, desert floral area, L. albifrons Benth., L. densiflorus Benth. var. lacteus C.P.S., foothill floral area, L. microcarpus Sims, var. ruber C.P.S., L. micranthus Dougl. Few other plants also named, rejected as food (p. 12).

For 86 plant species SM could give no economic, medicinal uses or names, referring to all of them as weeds (mašil): Albronia pogonantha Heimerl.; Achillea millefolium L. var. lanulosa Piper; Agoseris alpestris Greene; Azolla filiculoides Lam.; Baeria chrysostoma F. & M.; Brickellia californica T. & G.; Bromus rubens L.; Castilleia miniata Dougl.; Centaurium venustum Rob.; Centromadia (Henizonia) pungens (T. & G. Greene); Cerastium arvense L.; Chaenactis stevioides H. & G.; Cheilanthes covillei Max.; Chenopodium californicum Wats.; Chorisanthe staticoides Benth., C. watsonii T. & G., C. thurberi (Gray) Wats.; Chrysothamnus teretifolius Hall; Cotula coronopifolia L.; Cryptantha miriculata (A. DC.) Greene; Cuscuta californica Choisy; Datisca glomerata Brew. & Wats.; Delphinium hansenii Greene, D. purpusii Brandegee; Dicentra chrysantha (H. & A.) Walp.; Emmenanthe penduliflora Benth.; Encelia actoni Elmer; Epilobium californicum Hausskn.; Epipactis gigantea Dougl.; Ericameria cuneata (Gray) McCl. var. spathulata Hall; Erigeron divergens T. & G.; turkey mullein, Eremocarpus setigerus Benth.; Eriogonum argillosum J. T. Howell, E. angulosum Benth., E. mohavense Wats.; Eriophyllum ambiguum Gray, E. pringlei Gray, E. confertiflorum Gray; Euphorbia serpyllifolia Pers.; Galium angustifolium Nuss.; Gilia latiflora Gray, G. capitata Dougl.; Godetia viminea Spach; Greeneocharis circumscissa (Torr.) Rydb.; Gymnogramma trianularis Kaulf.; Hugelia filifolia Jepson; Langloisia matthewsii (Gray) Greene; Lepidospartum squamatum Gray; Linanthus aurens (Nutt.) Greene; Lotus strigosus (Nutt.) Greene, L. oblongifolius (Benth.) Greene, L. argophyllus

824 137 (Gray) Greene; Lycum cooperi Gray; Marrubium vulgare L.; Malacothrix californica DC.; Melilotus indica All.; Mimulus gluttatus D.C., M. cardinalis Dougl.; Mirabilis laevis (Benth.) Curran; Montia perfoliata (Donn) Howell; Nama demissum Gray; Oenothera alyssoides and O. alyssoides T. & G. var. decorticans Jepson, O. bistorta Nutt., O. caespitosa Nutt., O. contorta Dougl., O. pallida Lindl., O. palmeri Watson, O. scapoidea T. & G.; Pallaea and romedaefolia Fee; Penstemon laetus Gray, P. palmeri Gray, P. breviflorus Lindl.; Phacelia tanecilifolia Benth., P. hispica Gray var. cicutaria McB.; Platystemon californicum Benth.; Polygonum persicaria L.; Ranunculus aquatilis L.R. var. cymbalaria Pursh.; Rumex crispus L., R. hymenosepalus Torrey; Senecio douglasii DC.; Sidalcea malvaeflora Gray; Sisymbrium incisum Engelm.; Sphaeralcea (Malvastrum) exile (Gray) Jepson; Stenotopsis linearifolius (DC.) Rydb.; Stephanomeria exigua Nutt. var. pentachaeta Hall, S. virgata Benth.; Tropidocarpum gracile Hook.; Vaccaria vulgaris Host.

This list probably represents only small fraction of indigenous plants available to TÜbatulabal, of which they made no use; it serves to illustrate, in concrete fashion, selective processes at work, among people of hunting-gathering culture, in their utilization of their floral environment, and negative rôle which part of that environment played in their culture.

Plants put to other ethnobotanical uses, for curing, house building, etc., referred to in discussions of these subjects.

222 [462] 251 Gathering of plant food.- When acorns ripe, "all the people except very old persons and young children went together to get them" (SM); women chiefly collected them while men hunted, trapped. Acorns gathered from ground in small conical baskets, transferred when baskets full to large basket, in which they were brought back to camp and spread out on deerskins, tule mats for 3-4 days to dry, this preventing acorns from sweating when cached; then stored at acorn grounds, in elevated caches. Acorns gathered near home packed back to hamlets, cached near houses.

222 824 [887] When berries ripe on shrub (opo·bol), Rhamnus californica cuspidata (Greene) Wolf, which grows in foothill floral area, "the people knew piñons were ready to be gathered in the mts. So some men went out first to see where the piñons were good; just any men went; they decided, and then everybody went to the places where these men said the nuts were plentiful" (SM). All inhabitants of hamlet or of several hamlets went together; sometimes very old persons might not stay at piñon camp when weather became too cold, but return to hamlet alone. Piñons gathered when cones reached maturity, but before they had opened; men, boys knocked cones off trees with staves or pulled down branches with "shepherd's crook" staff; men, women picked up cones, put them in conical lug baskets which were emptied into larger conical

824 222 pack baskets as in gathering acorns. At camp when sufficient quantity of cones gathered, men, women prepared bed of sage (uyuga·dul), Artemisia tridentata Nutt. or A. cana Pursh., cones dumped on this, brush fired. Cones tested from time to time 824 to determine whether heat from burning brush had 222 caused scales to open sufficiently; if by time 251 brush burned down cones not sufficiently open, more brush was piled on top of them, roasting continued. After cones fully opened, allowed to cool; nuts shaken, picked out by hand from charred cones or winnowed from dirt and spread out on hides laid on ground around camp to dry for 3-4 days, as for acorns. Cached in pits. Those piñons which fell to ground from cones which had opened on trees as season advanced gathered by hand, brought home unroasted. Roasted piñons often pierced with sharpened twig of mt. lilac (utugu·bï·l), Ceanothus cuneatus, foothill floral area, and strung on long lengths of native twine; lengths of strung piñons festooned over houses when owners returned to village, or made into baskets (p. 32) at piñon grounds. Later these strung piñons eaten as delicacies.

222 462 252 During May, green cones of Digger pine twisted from branches, chiefly by men, boys; sliced down sides with obsidian knife; nuts picked out of soft shells, eaten immediately. Later in fall when cones matured but scales still closed, cones gathered by men, boys, roasted and treated in same manner as piñon cones.

222 Small seeds such as chia, wild oats, Mentzelia seeds, juniper berries, gooseberries, manzanita, and boxthorn berries gathered with seed beaters as Steward describes (Steward, 1933, 239). Bunch grass and Polypogon gathered on stem, dried in sun; seeds of wild heliotrope taken out by hand, [262 eaten raw on spot. Elderberries broken off on stalk, stalk shaken over basket into which ber- 264] ries fell. Tule, rush roots, mariposa lily bulbs dug in moist ground with digging stick; woman knelt on both knees, dug to one side or other of her body. Sunflowers treated as Steward describes (Steward, 1933, 239). Center stalk of Spanish bayonet and mescal knocked down at base with stave before stalks budded; prickly buds of Opuntia speared with sharply pointed stick; buds of tree yucca knocked off limb with staves. Leaves, stalks, small plants cut with obsidian knife.

412 Digging stick (u·lu·ini·l) straight stick, 4-6 ft. long, unweighted; made from piece of dry oak sharpened to point on end by rubbing on rock. Straight long stick (ma·wišul), 10 ft. or longer, used for knocking piñons off trees; shepherd's crook staff (olodi·l) had handle 3 1/2 ft. long with 5-in. crook at end. Crook made by bending end of green stick over knee and tying it in bent position with bark rope; stick then left to dry in hot sun for 3 days before crooked end untied.

Preparation of plant foods and beverages.- Mortar and pestle or grinding slab and rub stone

252 wild grapes; green Digger pine nuts; seeds of
262 wild heliotrope, which "smell like piñons, taste like hot peppers"; leaves, stems of salt grass, which was eaten plain or rolled in palm of hand with clover, Cotyledon laxa, or Ellisea membranacea; leaves of Coreopsis, wild onion, and fiddle-necks; leaves and heads of wild garlic; tender leaves, stalks of clovers. Some greens, etc., gathered in quantity by women, brought home and fed to family raw; these included gooseberries, tule roots, clover species, young tender stalks of red thistle, which were gathered before plant blossomed, and mariposa lily, yambal bulbs; latter peeled and eaten raw.

252 Manzanita berries crushed with rotary motion
262 on grinding slab or in mortar, made into drink
272 as fully described by Gifford (Gifford, 1932 b, 22, pls. 4b, 5). Dried whole boxthorn berries pounded in pit mortar, treated in similar fashion. Entire plant of Indian tea and Monardella candicans, either dried or fresh, boiled for short time in water, decoction drunk; sugar now added to tea from Monardella. Salt grass put in pot, covered with water; when saline crystals had dissolved in water, grass removed and decoction drunk. Mint, which grows around springs near houses, also used occasionally for nonmedicinal
[273] tea. Fermented or intoxicating beverages formerly unknown.

222 Manufactured foods and gum.- Honey dew, which
262 is produced in summer by aphids on stalks, leaves
263 of cane (paha·bil), Phragmites communis Trin.,
258 utilized as sweet (ha·bišt). Canes cut in July, August, spread out in hot sun to dry; then heaped on bearskin, "because bearskins are good and thick for beating," and flayed vigorously with hardwood stick beaters. Beating caused saccharine crystals on canes to adhere to bearskin; these crystals scraped off skin, winnowed on flat tray, put into small cooking basket, and made into stiff dough with cold water. Doughy mass removed from basket with hands, spread on twined tule tray (fig. 8a); end of tray folded over wet sweets, and tray put away for 6-7 days to allow sugary substance to dry. When dry, lumps of sweet broken off the hard brown loaf with rock and eaten dry with chia gruel. Presence of excess of carbohydrate which aphids derive from cane and are unable to assimilate, leaving it on cane as
● [824] honey dew, SM accounted for as follows: "The little bugs (tohawal, generic term for insects) make the sugar on the cane, like bees, and then they fly away. They do this in summertime, about in July; they leave a sticky stuff on the cane; this dries when the cane is cut, then is beaten off by pounding the cane. The bugs aren't on the cane when it's pounded. It isn't the juice inside the cane the bugs get out." Use of honey
171 dew as sweet also noted for Surprise Valley Paiute (Kelly, 103), Owens Valley Paiute (Steward, 1933, 245), Yavapai and Papago (Gifford, correspondence). Owens Valley Paiute, like Tübatulabal,

171 use honey dew which forms on Phragmites communis, also on rush, Juncus; Yavapai and Papago obtain it principally from willow, but also from cane.

262 Tübatulabal also occasionally sucked sections
263 of freshly cut cane for its sweetness (SM).

Saline crystals which form in dry hot weather
258 on salt grass made into "salt" (tu:t). Salt grass
137 grows in saline areas, on valley floors, at base
● 824 of foothills; its utilization among Tübatulabal depended on weather, as "after a rain it takes a month for salt grass to get salt again" (SM). Grass cut, spread out on mats to dry in sun; after grass thoroughly dry same process followed as described above for obtaining honey dew, save that collected crystals made up into balls or flat cakes instead of being spread on tule tray. Chunks
[272 equal to 2-3 full tablespoons broken off dry ball,
278 dissolved in cupful of water and drunk either for
757] refreshment or as laxative and to rinse out stomach. Salt-grass crystals also obtained by children who took willow switches and "swept" salt grass with them early on summer mornings; when sufficient quantity of crystals had adhered to stick, child took it to shady spot and licked off crystals. Fresh salt grass soaked in water and this
[262 water sprinkled over raw chopped clover, or sprigs
263] of salt grass and clover rolled between hands and eaten. Substance manufactured from salt grass never used to season meat or mushes.

314 Chewing gum made from milky juice of Asclepias
824 erosa Torr. (pololi·wa·bɪ·l); stalk of plant cut near top before it blossomed and juice collected in 4-in. tubular sections of jointed stalk of Eriogonum elongatum gramineum n. var. Stokes (ined.), (šiko·ništ). Joint of stalk served as natural stopper for bottom end of tubular section; juice run into stalk through open upper end; filled sections of stalk set in hot ashes to roast until plant juice inside has congealed; stalks then cut open, gum removed and chewed. This gum "better than store gum" (ES).

262 Meals.- Meals eaten twice daily around sunrise
264 and before sundown. At morning meal (wi·lil) and evening meal (tu·kil) men, children ate first, then women. Meat eaten at both meals, "if people
[415 had it." Men, women used spoons (ta·mil) made from antelope horn (ša·wun) for eating acorn mush (SM), or wooden spoons (FP); FN said spoons of elk, antelope horn not made. Acorn mush eaten with fingers (MM). No formula spoken before eating. Children pieced during day; "mothers gave
[753 them a cup of chia gruel" (SM). Food rarely eaten
774 after dark as ghosts "come around at night; they
[609 might throw something in the food that would make a person sick" (SM, FP). Because strangers potential enemies who might put poison in food, person avoided eating with them. Women when out for day gathering seeds, tending tobacco, etc., took lunch with them which they ate about 10 or 11 a.m.; men hunting deer "didn't take any food; they came home in the evening" (FP).

302 [765] sun, woman bound string around head, hair rolled up to project over string, thus shading face. At death of husband woman burned back hair to neck length (Gayton, 1929, pl. 95a, b). Bulb of soaproot (ho·olo·hpi·l), Lathoe pomeridiana (DC) Raf., pounded, or roots Chenopodium californicum Wats. (ho·oha·l) pulverized by rubbing on rock, and used for shampoos; later these and inside of fruit of Cucurbita foetidissima HBK (ɨihabɨ·l) used also to wash cotton clothes. Women brushed hair every day; Garcés comments (p. 282), "women . . . take great care of the hair and do it up in a topknot (copéte)," probably referring to rolling up of hair to project over string (above). Lice removed by washing hair with alkali (pi·šil) solution and letting powder stay on scalp for several days. At dances women put loose eagle down in bangs. Children wore hair loose, girls of 5 having bangs.

[824] [388] [515] [296] [515] [301]

303 [413] Brush (wɨŋɨt) made from fibrous outer sheath of soaproot; bulb dug in March-April when plant green, outer sheath removed, shredded, and 3 bunches of fibers, each 3/4 in. wide, 4-5 in. long, twined together at one end with native string to form flat, narrow brush. This hair-brush similar to one women used when pounding meal, tobacco, except that mealing brush was wider, consisting of 4 bundles of fibers twined together. Museum specimen 1-19800 has fibers wrapped at lower end with sinew (?) to form triangular handle; said to have been "used for hair and flour." Porcupine tails, pine cones, pine needles never used for brushes.

302 Nails kept short by filing them on piece of rough rock, or else allowed to grow long, break off.

515 Both sexes bathed frequently, summer and winter, in pools at springs or in streams; "the young men are fine fellows, and the women very comely and clean, bathing themselves every little while" (Garcés, 282).

301 [177] [439] Ornaments.- Necklaces of white clamshell disks (tugumbal) worn by women only, chiefly at dances. Small concave white shell beads, olivella shells, long shell cylinders (hobo'apɨn) made from columnella of giant clam (?), and in historic times red, blue, black glass beads used in combination for necklaces (pl. 6b). Both shell and glass beads, shell cylinders obtained from Chumash, who made shell beads, and also to some extent from Yokuts.

Nose plug (mupipugišt) made from shell cylinder; 2-3 in. long, 1/4 in. thick; worn by women only "when they danced." Women also wore strings of small clamshell beads in nose (FP). Earrings (naŋgawili'at) consisting of short strings of clamshell beads worn by women only. Bracelets (mašabu·nun) of clamshell or other beads worn by young girls. Men "never wore anything" in way of bead ornaments (SM, FP).

302 Facial decoration.- Paint made from red earth (yahawa·l) mixed with water, smeared over face by

177
372 steel, but we used the 2 pieces of stone and no
462 steel" (SM). Quartz for these strike-a-lights
[439] obtained from Koso Indians at Koso (FP).

Firewood.- Small trunks of willow (ha·l),
313 Salix laevigata Bebb., branches of Fresno tree
(a·wilibĭ·l), Fraxinus oregana Nutt., stream
alder (pawiču·l), Alnus rhombifolia Nutt., and
dry oak used chiefly for firewood (kutuga't);
cottonwood (u·'ut, generic name for tree), "too
light" (SM). Firewood broken into 3 to 3 1/2-ft.
lengths for carrying in pack basket; women
[462 packed on back loads of slightly longer lengths,
482] but "not too heavy" (FP); men brought in larger
pieces on shoulder.

GLUE, PITCH, AND ASPHALT

381 Glue.- Deer horns boiled in small amount of
water, in pot, to obtain glue (a·wadin pa·hn,
horn water); used to apply sinew backing to bows.

314 Pitch.- Several varieties pitch (ša·nun) used
● 824 for different purposes; pitch from Digger pine
415 applied to soles of moccasins to make them wear
longer (FP); pitch from bull pine smeared over
torches used in quail hunting. Basketry water
bottles made watertight by putting handful of
red earth of same variety used for face paint,
plus lump of piñon-pine pitch inside finished
bottle, together with quantity of heated pebbles
about size of person's thumb. Hot pebbles shaken
vigorously inside basket for 5-10 minutes, thus
causing pitch to melt, combine with red earth,
and coat inside of container. Hot melted pitch
also smeared over outside of bottle with small
stick; when it had cooled slightly red earth,
mixed with little water, was smeared on top and
mixed in with pitch coating. The red earth, used
in combination with the pitch, made water "taste
sweet"; if pitch alone used, water had "bitter"
taste.

Pitch or gum (ya·bul), obtained from grease-
wood, used to fill walnut-shell dice (FP).

317 Asphalt.- Lumps of asphalt brought into area
[439 by "the Indians from around Ventura, when the
574] latter came up for piñons. The Tübatulabal also
visited at Ventura, and one of the things they
brought back from the ocean was asphalt" (SM).
This commodity used in variety of ways, some of
which were: to attach prong to shaft of harpoon,
to attach bone point to fish hook, to cement
foreshaft in cane mainshaft of arrow, and socket
arrowheads into foreshaft, to secure knife blade
in handle, to attach basket hopper to mortar.
Asphalt also used to smear over fishlines made
of native twine, and lumps of it served as knob
handles for bone, cactus spine awls. Asphalt was
softened by melting; often applied with small
stick. Gifford and Scheneck (p. 53) also note
presence of asphalt beds on surface in hills SW

317 and W of lake region in s. San Joaquin valley, and are of opinion material was well known in lake region at least; Tübatulabal data extends area of distribution for use of asphalt eastward.

BASKETRY, WOVEN WARE, AND CORDAGE

285 [171] Basketry.- Tübatulabal basketry "scarcely distinguishable from that of the southern Yokuts; it appears to average a little better in fineness" (Kroeber, Handbook, 608). Coiled and twined ware still used to some extent, but new pieces rarely made now; U.C. museum has collection of 34 Tübatulabal baskets and basketry implements. All basketry ware manufactured, used by women with exception of tule basket fish traps, made by women, used by both men and women, and basketry tray (wa·t), article of domestic use, but also employed by shamans in shooting contests. [462] [756]

Basket techniques were (a) coiling on multiple-rod foundation, (b) plain twining, (c) 2- and 3-rod diagonal twining. Stitches on some of finer coiled ware run 20-22 to inch, with 9-10 coils to inch. Sewing was from left to right as among Owens Valley Paiute (Steward, 1933, 346, pl. 6b); this opposite to Northfork Mono (Gifford, 1932 b, pl. 16a, b). [171]

285 824 Split willow or tree yucca roots used for 1-2 rounds to start coiled basket; foundation material (wĭnapĭ·l) consisted of 2-3 whole stalks or 4-6 halved stalks of deer grass (mašil, weed), Epicampes rigens Benth., plus, for larger coiled ware, one small peeled shoot of redbud (kada·dihpul), Cercis occidentalis, willow (ša·hat), Salix laevigata Bebb, S. araquipa (Jeps.) Ball, or arroyo willow (ha·l), S. lasiolepsis Benth., S. lutea var. Watsonii (Bebb) Jepson. For finer coiled ware, such as trays, money jars, stalks of deer grass, the foundation materials were split in half; otherwise used whole. Deer grass gathered when green, laid out to dry, then tied up in bunches 2-3 in. in diameter and laid away until needed, grass being split when used.

Light-colored weft material (šĭ·l) for coiled baskets made from finely split willow roots (FP); also from finely split roots of tree yucca, which at certain seasons are light yellowish, at other times red (ES). Coiled baskets decorated in red, or red and black; red weft obtained from tree yucca roots, black material from roots of unidentified shrub (mo·nunt), which grows in wet places (PN, FP), or from antennae of pods of devil's horn, Martynia proboscoidea Glox.; latter plant, which is classified as weed, grown occasionally in gardens now, pods sometimes saved.

For one special type coiled basket (below), foundation consisted of strings of piñons strung on native twine; weft was of twine.

Warp (šĭ·l, also term for weft material), for plain twined baskets made from small whole or split peeled willow or redbud shoots; for diagonal twined ware same, but for some twined ware

285 small willow or cottonwood roots used. Weft for
824 various types [illegible]ined ware made from whole or
split peeled [illegible] or redbud shoots, roots of
tree yucca, [illegible]ark of willow. Tules used
considerab[illegible]askets, mats; there are few
tules in eit[illegible]ern or South Fork valleys now,
but formerly they were plentiful at certain localities, especially in South Fork valley. Warp and weft of tule baskets consisted of whole tules, which were gathered, trimmed, dried, then soaked before being used, as was all fibrous material used for basketry.

292 Coiled baskets included:

171 285 (a) Cap, which was flat topped, resembled Owens Valley Paiute (Eastern Mono) type (Kroeber, Handbook, 560, pl. 55d). Specimen 1-20960 (illustrated in O. T. Mason, 284, pl. 40), is 8 in. high, 4 1/2 in. wide at rim; design is in black and red; specimen 1-20961 (Mason, ibid.) is 7 3/4 in. high, 4 in. wide, has 14 stitches, 9 coils to inch. Caps started with yucca root; foundation consists of 2 stalks deer grass split in half; sewn with yucca. Worn by woman whenever she used pack strap, also when gathering piñons to protect hair from pitch.

415 285 (b) Sifter (wa·t) or small tray; slightly concave on inside. Specimens 1-19821-22 are 16 1/2 in. in diameter; 1-19823-25, 15-15 3/4 in. in diameter; 1-19814, 10 1/2 in. in diameter. Coil is clockwise, looking down on inside; one specimen has foundation consisting of 6 halved stalks of deer grass and one finely split willow shoot; is sewn with yucca root. Start leaves round hole 1/4 in. in diameter in center of tray; specimen 1-19824 has piece of cloth plugged into hole at start. Of all basketry ware extant in 1932, sifters seen most frequently; uses have been referred to (ante).

[525] (c) Parching tray (ša·gišt); was "made like a sifter, only larger"; used for parching small seeds, such as chia, with live embers. This tray may have been used also for women's dice gambling game; FP said game played on sifter, but PN said on "a pretty big basket, with rather high sides"; no specimen extant.

[252] (d) Cooking basket (hom'mol); these were large flat-bottomed baskets with flaring sides; sizes varied, some being 22 in. tall, 11 in. wide at top, 5 in. in diameter at bottom; others smaller. Used for stone boiling, to drain manzanita cider into, as storage baskets, etc. Specimen 1-20945, 20948-50 (illustrated in O. T. Mason, 478, pl. 192) are probably cooking baskets; 1-20947, large flaring basketry bowl, 17 1/4 in. high, 8 in. in diameter at top, 4 1/4 in. at base, is labeled "to be burnt on grave," which suggests that some of baskets of this type were made for display purposes only; unfortunately I did not inquire into this matter.

(e) Basketry ladle (hom'mobit); was small shallow basket, shaped like cooking basket, only difference being one of size. Specimen 1-19813, identified by ES from sketch as ladle, is 2 1/2

846 deer (SM). While on trench mother used scratching stick (o·wati·š), made from any piece of twig, so hair would not fall out; did not touch face with hands, else she would have pimples. Short time after birth girl babies' ears pierced for ear-
[304] rings, "because they don't feel it much then" (SM).

Father did not eat meat or salt until child's navel healed, else cord would rot; optional whether he hunted or fished (SM); many did not, for 2 weeks (MM, FP). Could, however, drink cold water. Did not sleep with wife for 2-4 months after child born.

853 Child was generally nursed whenever it cried; "some mothers slapped their babies when they cried all night, others nursed them" (MM). Nursing continued until child at least 2 yrs. old; LT's child
[862] of 4 frequently nursed, standing beside LT when latter seated. If mother became pregnant while
[841] child still nursing, latter weaned. Menstrual periods for woman usually recommenced about yr. after childbirth (FP).

854 Up to time when they could walk well, children
481 carried about in cradles (see section on Means of transport).

842 Childless women took herb medicine to have children; FP's husband's stepfather, a Tejon Yokuts, prepared such for FP (see Autobiography
[845 of FP). Children born dead buried immediately;
754] parents not subject to meat taboo if this occurred; "not many babies died, unless a witch wanted to give their parents hard luck" (SM).

847 Abortion, infanticide.- Leaves of a "big tree"
824 (sp. ?) boiled and tea drunk by woman when she first knew she was pregnant if she wished to induce abortion; also women took medicine to prevent conception. Newborn infants "sometimes killed; one woman had a baby and killed it; she went off somewhere with her mother, so no one would know. They just buried the baby any place, like a dog; I don't see how they could do that. That woman was a witch" (FP).

845 Twins.- If person laughed about woman having twins (cono'), that person would also have twins. Twins treated well; if one treated badly, died, other would die too and give family bad luck, hence twins often accorded more consideration than other children. If mother of twins over-
[597] worked, unable to nurse both babies, relative might adopt one of them; ES, herself childless, had thus adopted her brother's son, one of pair of twins.

597 Orphans, illegitimate children.- Orphans, or
768 one of several children with one parent dead, other remarried, adopted by blood relatives. Observations (1930-1932) of 3 adopted children showed 2 treated indulgently, one as a menial.

848 Illegitimate child kept by mother, who lived with her family; father of child expected to bring meat to mother occasionally; if mother

THERAPEUTICAL PRACTICES

757 General good health induced by sweat bathing, observing pregnancy, menstrual taboos, bathing in hot springs, taking some simple herb medicines, as salt-grass crystals in warm water every morning for laxative purposes, to clean out stomach. In sicknesses, before taking patient to shaman for treatment which partook of nature of religious ceremony herb medicines (ti·bo·hišt) might be administered by old man, woman. Such persons often doctored ailing members of family, without any singing ceremony; "anyone who knew the right medicine for an ailment would do this; 759 sometimes a herbalist would be sent for to treat 757 a sick person; in that event he'd be paid. People learned about the medicines from their parents or grandparents, or a man would know about a medicine and other people would pay him to tell them. [177] They learned a lot about medicines from the Mexicans, too. Now the witches have spoiled all the plant medicines except jimsonweed; they can't spoil that because it's too strong" (SM). In situations where shamans failed to effect cure, herb medicines might be administered after shamanistic treatment.

757 Ants also used as medicine; charms sometimes applied to body to relieve pain.

Plant, insect remedies.- Following plant, insect remedies, unless initialed otherwise, given by SM.

757 Piece jimsonweed root (mo·mo·ht), Datura
●824 meteloides HBK., weed, about 12 in. long, dug, washed, macerated, set to soak for day in 2 qts.
278 cold water; in evening water strained, given to patient, who had abstained from food, drink for 3 days and had cleaned out stomach every morning during fast with bitter drink made from roots of reise blanco. After taking dose patient fell into stupor which lasted 12-24 hrs.; during this time he was turned from one side to other; if he lay on his back or stomach he would fail to revive. FP's father blew whistle when giving her jimsonweed (see Autobiography of FP). While under influence drug patient might walk around, but was watched carefully; sometimes had visions (Voegelin, 1935 b, 215); SM imagined row of fence posts were dancers in feather costumes when he took drug; MM one time saw man who told him to take jimsonweed again in week; next time MM took it he saw white lizard drop from his shoulder, black one from his knee; when he awoke his rheumatism had disappeared. Sometimes patients, upon advice of person seen in stupor, drank jimsonweed 3 times before they were cured.

Before digging root plant addressed briefly; drink could not be administered in summer as "the roots are all right then, but when it's hot you want water; if you drink water and then drink jimsonweed, you get bloated right away" (SM). If drug taken without fasting at least 3 days, dose immediately vomited.

757
●824
278

SM had given jimsonweed to MM for rheumatism, after shaman failed to cure him; to RP when she was badly bloated, constipated; had taken it himself when wounded in leg, as anodyne; FP had taken it for rheumatism (see Autobiography of FP).

Dry pounded jimsonweed root used as poultice on sores to relieve inflammation.

Powdered tobacco and lime snuffed to clear nose during colds. Tobacco, lime mixed with water, drunk in evening in sweat house, among groups people or by individuals in order to induce vomiting, thus insuring dreamless slumber.

Large root of yerba mansa, Anemopsis californica (Nutt.) Hook (čahpanÝ·l), boiled in qt. water for hour, decoction strained, cupful drunk every 2 hours for day or so, for heavy colds. Piece of root 1 in. long of Langloisia matthewsii (Gray) Greene (paništ), desert floral area, boiled in pint of water few minutes, dose taken 3 times during day for colds.

As laxative, 4-5 tsp. salt-grass crystals (p. 15) mixed with 1 tsp. ordinary salt in cup warm water used.

Leaves, flowers Stenotopsis linearifolius (DC) Rydb. (ča·dača·dapīl), foothill floral area; stalks, flowers Ericameria monactis (Gray) McCl. (same name); roots of Encelia actoni Elmer, desert floral area, boiled, affected parts washed with decoction for rheumatism.

Leaves, flowers Diplacus longiflorus Nutt., or D. aurantiacus Jepson, both foothill floral area, boiled, decoction strained, drunk for stomach-ache. Dry heads Eriogonum fasciculatum Benth. var. polifolium T. & G., foothill floral area, boiled, tea drunk for stomach-ache, diarrhea.

Entire plant of turpentine weed, Trichostema lanceolatum Benth. (ši·gišt), foothill floral area, boiled, infusion snuffed up nose to stop headaches, nosebleed.

For bloody flux, entire plant Heliotropum curassavicum L., general in alkaline soils, boiled, decoction drunk; handful of dried flower heads of Eriogonum fasciculatum Benth. var. polifolium T. & G., foothill floral area, boiled 1/2 hr. in water, decoction strained, cupful given 3 times daily; mild enough to give children.

Stalks, leaves of Indian tea, Ephredra viridis Coville (u'tu·udul), desert floral area, boiled; decoction "good for blood" (SM), used for syphilis (?).

Entire plants Eriogonum virgatum Benth. (šiko··nišpul), foothill floral area; E. baileyi Wats., E. gracillimum Wats., Chorizanthe staticoides Benth., desert floral area, boiled, infusions used as lotions for pimples.

Ripe seeds Argemone platyceras Link & Otto (šo·'lolo·pul), Great Basin floral area, pounded, used as poultice on open sores, piles. Ripe seeds of Echinocystis brandegei Cogn. (čawakišt) and E. horrida Cogn., foothill floral area, burned until black, rubbed with fingers in palm of hand until reduced to greasy paste which was smeared over pimples, rubbed over baby's umbilicus after navel

757 cord had dropped off (SM). Entire plant of Hugelia
●824 densiflora Benth., foothill floral area, broken
278 up, applied as poultice for ulcers; plant also boiled, decoction drunk for heart disease.

Entire plant Euphorbia polycarpa Benth. (šimindiŋ ti·bo·hišn, rattlesnake medicine), desert, dry areas, pounded, applied as poultice to opened rattlesnake bite; plant boiled and bite washed with decoction.

Entire plant Castilleia miniata Douglas, foothill floral area, boiled, spots affected with poison oak washed with decoction daily for 4, 5 days.

Milky juice from stalks Asclepias erosa Torr. (pololi·wa·bul), desert floral area, rubbed on warts to make them disappear.

Leaves of Polygonum sp. (tamandiŋ ti·bo·hišn, tooth medicine) chewed into quid, which was held in mouth against aching tooth.

Furze from stems of Eriophyllum confertiflorum (DC) Gray (po·a·ništ), foothill floral area, scraped off with fingernail, rolled into balls 1/4-1/2 in. thick; 3 balls put in succession on spot affected with rheumatism and set on fire; balls "burned like powder." Blisters raised not pricked open immediately.

Pitch from balsam (ana·nu·l), Digger pine, Pinus sabiniana mixed with grease, used as salve on sores in recent times, not aboriginally.

757 For heavy colds, paralysis, 4-5 yellow ants
825 (SM), large red ants (FP), wrapped together in
278 little ball of eagle down; 15-20 of these balls swallowed with sips of water, one ball at time, by man, woman who had abstained from meat for month, fasted for 2-3 days and vomited each morning during fast, previous to taking ants. After swallowing the balls patient frightened, "so the ants would break out of the balls and sting patient"; latter remained in stupor 24 hrs., at end of this time given warm water to induce vomiting. According to MM, if all ants came up alive, patient would recover completely, if half of them were dead he "wouldn't live long," and if all dead he would die shortly. For FP's experience taking ants, see her Autobiography. Yellow ants "could sting hardest and had medicine"; other varieties no good (SM). After taking ants patient ate only little acorn mush for 2-3 days, no meat, grease for month (FP). Live ants also put on sick person's abdomen, "if patient didn't want to drink them" (FP).

824 If woman having protracted labor, person own-
842 ing amulet rubbed this over parturient to hasten
845 delivery. Herbal decoctions were drunk to induce
847 fecundity, to prevent conception and produce
278 abortions but the plant species from which these were made could not be obtained.

RELIGIOUS BELIEFS

771 Deity, culture hero.- Concept of supreme deity
776 lacking; "people didn't know about the man who

754 Besides foregoing practices, witches might
278 also use poison (mušmal); one of witches at Onyx
177 rancheria said to possess poison which she ob-
824 tained at Tule from Yokuts, among whom poisoners active (Gayton, 1930, 390); FP mentions 2 cases poisoning in her autobiography and blames Tule River Yokuts for both. Poison used is obtained from plant and is not exclusive possession of shamans; it is administered in food, which makes people loath to accept food from strangers (SM).

753 Ghosts sometimes put hair, tiny pebbles in
775 food when people ate after dark; this also caused sickness.

754 Various preventive measures taken against
751 witchcraft; SM swallowed tobacco and lime every night to induce vomiting so that he would not have bad dreams. Person who dreamt of coyote, rattlesnake, went out into canyon early next morning, made speech to creature, upbraiding him, and blew bad dream away (Voegelin, 1935 b, 217). Some persons took jimsonweed, etc., to obtain supernatural power against witchcraft.

754 Various attempts made to overcome effects of
755 witchcraft; relatives of sick person often made
756 direct threats to witch; when RP sick, her brother went to witch at Onyx, told latter, "If you don't
626 cure my sister I'm going to do something to you." Witch took RP out in bushes, threw ashes over her, talked to her pet and told it not to make RP ill any more; RP recovered. FP's husband made similar threat to witch. MM said relatives of sick person paid $10-20 to witch sometimes so that latter would stop sickening patient; FP corroborated
[751] this, SM said only threats used. Medicinal herbs also administered to restore health (ante); if these failed, or in violent illness, services of curing shaman engaged; actual practices of such detailed below; shaman might or might not tell patient who was bewitching him; if witch a relative of shaman latter loath to tell, might advise patient to move away from house. If curing shaman told patient who was witching him, and latter's relatives threatened witch but to no avail, shaman might make witch come to see patient and effect cure; witch cured by blowing sickness out of patient's body, using feather which he waved back and forth. Evil shamans who could only bewitch never sucked out pain in curing a victim, as other shamans did, because if pain sucked out it would enter witch's body, cause his own death, he not being powerful enough to remove it.

683 If witch refused to cure sick person or stop
627 malevolent practices, patient's relatives, after
622 obtaining chief's sanction, often killed witch.
754 Evil shamans both sexes treated thus; if sister of chief a witch, chief would talk to her, warn her to stop her evil practices, but if she did not he would order her killed (SM). Murder of witch might be accomplished by one or several individuals; witch might be lowered over cliff (see Autobiography of FP), shot; Bill Viejo Chico bound with hair rope, tied to tree, burned alive. In

T 756 754 American currency from $10-50; formerly equivalent amounts paid in clamshell currency. "If a doctor is paid too little, instead of curing a patient, he makes him sick" (FP). Relative of patient pays shaman before curing commences; fee not returned if treatment unsuccessful. Considerable borrowing often occurs between relatives if someone is taken suddenly ill and requires immediate shamanistic treatment.

T [426]

Weather shamans.- Although SM asserted Tübatulabal formerly had own weather shamans (paha·m), all my material relating to this type shamanistic activity concerns performances of Chumash, Kawaiisu weather shamans. SM's stepfather, Chumash from Tejon, had practiced weather shamanism until part of his outfit (tanganišt) was stolen from him; this outfit consisted in part of white quartz crystals used for making thunder showers in summer and black rocks for winter rain; these kept in striped fawnskin sack, in dry place. Besides, rain doctor used steatite pipes with bird-bone mouthpieces, small steatite bowls (pl. la), dew-claw rattle. To make rain, 4 old men and weather shaman sang for 3 nights; during day singers abstained from meat, eating only acorn mush and seeds. At end of 3 days rain doctor took outfit outside and delivered esoteric speech, alone. Then he brought rocks in and it rained. FM said his mother had seen snow made in summer by weather shaman. One rain doctor said to have "hollered 3 times; a cloud came up and it rained right away" (SM). Loraine (Kawaiisu) rain doctor MM knew had "little round thing" (stone?), which he sprinkled with water, sang over. If he had ever put rock in water, "he would have flooded everything" (MM). Bob Rabbit, Kawaiisu rain doctor, has notable reputation among Tübatulabal; "one time when Bob Rabbit was away from home, some hungry boys broke in and stole his meat. He returned, found what had happened, and was so mad he made loud noises in the mts., and then rain, in 20 minutes, although there were no clouds in the sky when he began" (FP).

756 789 821 791 C 821 789 [823 415] [276] K 821 789 791 T K

Rain doctor not paid for services; "he just made rain lots"; however, when women went to gather cane and rain doctor made shade for them, women gave him some of sugar they made from cane; same applied to women out seed gathering. Bob Rabbit, Kawaiisu mentioned above, "won't make rain now, because the white people won't pay him to do it" (FP).

821 789 791 T C

An interesting extension of rain doctor's activities as SM knew them from his Chumash stepfather, briefly described. At new moon, in month "when icicles dropped from house" (January), rain doctor filled little black stone bowl with water and planted whole acorn, chia seeds, every other kind of seeds in this bowl and left it inside his house for month; "he did this to make all the seeds grow well that spring. He talked over these seeds, the same way that he talked when he went outside to make rain."

● 824 821 789 791

159 out some place and the old woman took a spine
304 from a bush that grows all over up there and made the marks on me. My mother didn't know about it until afterward, because she wasn't there. At first I ran away from the old woman; I didn't want her to do it, but she said those marks would look pretty on me. Then I said, "All right," and she made them. It hurt a lot. And then she rubbed in charcoal made from the wood of some sort of a bush. I tried to rub the marks off; I grabbed dirt and rubbed it all over my face and arm, but the marks wouldn't come off. They used to show on my face for a long time, when I was younger. Indians used to do that to make themselves look pretty. PN and Petra Miranda have those marks on their faces, too.

159 Two of my brothers died while we were at u·u··
754 pu·lap. The bad doctor, Old Bill Chico, killed
682 them. He said when he got drunk one time that he was going to kill all the children, so later they burned him over at Kernville; they tied him with a hair rope and threw him into the fire.

159 When my brothers died my parents made a fiesta
764 to have their faces washed; my mother cut off her
765 hair down to her shoulders, too, when they died.
We lived at omomIp for awhile after that. Then some men went over on the desert and saw lots of
159 ku·l (p. 15) over there, so lots of people from here went to get it. That was when I was a young girl, about 16. I went over on the desert with my grandma (mother's mother), to a place this side of Randsburg, on a hill. A lot of people
[481] went. There were 4 camps of people over there. We all went afoot, men and women. One little girl went with her grandma; the little girl was maybe 9 or 10 yrs. old. There weren't any babies taken; the women couldn't carry them. It was in the early summer, maybe in June. We took flour from omomIp; Bill Scodie had a store near omomIp where he sold flour and coffee and sugar and whiskey. But we ate all that flour up when we got over on the desert, so then we just had ku·l seeds and Mariposa lily bulbs and chia seeds to eat; we ate all those. There were lots of boxthorn berries over there, too; we gathered those. And lots of Mariposa lily bulbs, big ones that
[824] we peeled a little and then boiled. We'd get half a sackful. The Mariposa lily bulbs over here are little and sweet, but those over on the desert are big.

159 That little girl who went over there used to
252 grind ku·l seeds on a grinding slab. She was little, and everybody stood around watching her, all the people; she cried then, because she was ashamed, I guess. Her grandma told her it was all right, and not to cry.

159 We ate rabbits and ku·l and chia seeds. There
[265] was nice water there, cold. We made a shade from greasewood brush; not a ramada, but a shade with
349 a single pole sticking up out of the ground and another pole leaning against the first one in the fork at the top; then we piled greasewood on both sides against that slanting pole (as in

Gifford, 1932 b, pl. 2)[p. 73(6)] 1 [ie., Montzelin Albicaulis Dougl.-- Analyst]